

CLAIMS

1. A boring device comprising:

a boring tool;

a guide for restricting a moving direction of the boring tool;

5 a vibrator for applying vibrations to the boring tool to make the boring tool jump;

and

a float retention member for retaining the boring tool in a floating state at a specified position and for generating a restoration force to return the boring tool at least up to a position where the boring tool comes into contact with the vibrator when the boring tool is displaced
10 from the specified position.

2. The boring device according to claim 1, wherein the float retention member returns the boring tool to the specified position when the boring tool is displaced from the specified position.

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3. The boring device according to claim 1, comprising a pressing device for pressing the vibrator towards the boring tool.

20 4. The boring device according to claim 1, wherein the vibrator repeatedly applies the vibrations to the boring tool.

5. The boring device according to claim 2, wherein the vibrator repeatedly applies the vibrations to the boring tool.

25 6. The boring device according to claim 3, wherein the vibrator repeatedly applies

the vibrations to the boring tool.

7. A boring method for boring an object to be bored comprising:

retaining a boring tool in a floating state at a specified position inside a guide that

5 restricts a moving direction;

applying vibrations to the boring tool using a vibrator to make the boring tool jump towards the object to be bored;

making the boring tool strike the object to be bored; and

returning the boring tool having been displaced from the specified position at least up

10 to a position where the boring tool comes into contact with the vibrator.

8. The boring method according to claim 7, wherein the boring tool having been displaced from the specified position is returned to the specified position.

15 9. The boring method according to claim 7, wherein when the vibrator applies vibrations to the boring tool to make the boring tool jump towards the object to be bored, the boring tool is made jump while being pressed towards the object to be bored.

10. The boring method according to claim 7, wherein the vibrator repeatedly applies
20 the vibrations to the boring tool.

11. The boring method according to claim 8, wherein the vibrator repeatedly applies
25 the vibrations to the boring tool.

12. The boring method according to claim 9, wherein the vibrator repeatedly applies

the vibrations to the boring tool.